

Mineral Industry Surveys

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MOLYBDENUM IN DECEMBER 2004

Domestic production of molybdenum in concentrate in December 2004 was about equal to that of the previous month and was about 52% more than that of December 2003, according to the U.S. Geological Survey. Year-to-date production of molybdenum in concentrate from January through December was 25% more than during the same period in 2003. Producer stocks of molybdenum in concentrate, oxide, and other product forms were about 4,730 metric tons (t) at the beginning of 2004 and 5,920 t at the end of December.

According to Ryan's Notes (2005), the December monthly average prices for U.S. ferromolybdenum (FeMo) ranged from \$34.143 to \$36.143 per pound of molybdenum content, compared with \$30.125 to \$31.500 in November. European FeMo monthly averages ranged from \$85.286 to \$87.286 per kilogram (kg) of molybdenum content in December as compared with \$68.750 to \$71.000 in November. In December, worldwide molybdenum oxide prices ranged from \$32.000 to \$32.929 per pound versus \$24.781 to \$25.425 in November.

For the fourth consecutive month, European ferromolybdenum prices increased, trading in the range of \$75-\$85 per kg in December as compared with about \$20 per kg in January 2004. The December price rise represented an increase of about 14% over that of the previous month. Chinese ferromolybdenum prices continued to rise and traded at \$65 per kg in December, about \$5 per kg more than that of the previous month. Further price hikes are expected as Chinese producers compensate for lost revenue owing to the removal of China's export tax rebate (Metal Bulletin Research, 2004).

Roca Mines Inc. planned to use British Columbia's expedited permitting program for small mines to permit its Max molybdenum project in southern British Columbia, Canada, and to begin production by the second half of 2005. Three mine development options were being considered at production rates

of up to 1,000 metric tons per year (t/yr) of contained molybdenum. A mill would process the ore on-site to produce a concentrate that would be sold as is or toll roasted elsewhere (Platts Metals Week, 2004).

Molibdenos y Metales (Molymet), Santiago, Chile, announced plans to boost molybdenum concentrate processing capacity at the San Bernardo, Chile, plant by 18,000 t/yr (40 million pounds per year) and at its Sacaci subsidiary's plant in Ghent, Belgium, by 4,500 t/yr (10 million pounds per year). The expansion in Chile should be completed in 2007, but the expansion in Belgium may not be completed until 2009. Molymet expected to increase its ferromolybdenum conversion capacity in the first half of 2005 by 9,000 t/yr (20 million pounds per year) to about 23,000 t/yr (50 million pounds per year). Molymet produced ferromolybdenum and molybdenum oxide at plants in Chile, Belgium, Germany, and Mexico (Ryan's Notes, 2004).

Included in this Mineral Industry Surveys are U.S. production and shipments of molybdenum concentrates and materials, U.S. consumption by end use, and stocks of molybdenum material in November and December 2004, and trade data for October and November 2004.

References Cited

- Metal Bulletin Research, 2004, Molybdenum highlights, Year end provides a boost to prices: Metal Bulletin Research, Ferro-alloys Monthly, no. 148, December 17, p. 14.
Platts Metals Week, 2004, New BC moly mine may start up in 2005: Platts Metals Week, v. 75, no. 49, December 6, p. 5.
Ryan's Notes, 2004, No vacation for moly market: Ryan's Notes, v. 10, no. 52, December 27, p. 1.
Ryan's Notes, 2005, [untitled]: Ryan's Notes, v. 11, no. 1, January 3, p. 4.

TABLE 1
U.S. SALIENT MOLYBDENUM CONCENTRATE STATISTICS¹

(Metric tons, contained molybdenum)

	2003	2004		Year to date
	January-December	November	December	
Production	33,500	4,330 ^r	4,360	42,100
Shipments: ²				
Domestic	25,900	2,680 ^r	3,280	31,100
Export	7,660	1,270	1,450	11,100

^rRevised.

¹Data are rounded to no more than three significant digits.

²As reported by producers.

TABLE 2
U.S. REPORTED PRODUCTION AND SHIPMENTS OF MOLYBDENUM PRODUCTS¹

(Metric tons, contained molybdenum)

	2003	2004		Year to date
	January-December	November	December	
Gross production	41,400	5,870	6,200	65,800
Internal consumption ²	29,600	3,870	4,040	41,700
Gross shipments	30,100	3,200	3,430	39,100

¹Data are rounded to no more than three significant digits.

²Includes molybdic oxides, metal powder, ammonium molybdate, sodium molybdate, and other.

TABLE 3
U.S. REPORTED CONSUMPTION, BY END USES, AND CONSUMER STOCKS OF MOLYBDENUM MATERIALS¹

(Kilograms, contained molybdenum)

End use	Molybdc oxides	Ferro molyb- denum ²	Ammonium and sodium molybdate	Molyb- denum scrap	Other	Total
2004, November:						
Steel:						
Carbon	33,700	W	--	--	W	33,700
High-strength low-alloy	25,400	19,000	--	--	11,300	55,800
Stainless and heat-resisting	206,000	64,700	--	W	6,780	277,000
Full alloy	134,000	167,000	--	--	1,510	302,000
Tool	56,000	W	--	--	--	56,000
Total	455,000	250,000	--	W	19,600	725,000
Cast irons (gray, malleable, and ductile iron)	W	11,000	--	--	763	11,800
Superalloys	63,600	W	--	(3)	126,000	190,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	208	2,400	--	--	20	2,620
Mill products made from metal powder ⁴	--	--	--	--	118,000	118,000
Cemented carbides and related products ⁵	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	W	--	--	W
Catalysts	77,300	--	W	--	W	77,300
Other chemicals	--	--	--	--	1,670	1,670
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	19,500	19,500
Other	1,090	52,500	75,700	16	16,800	146,000
Grand total	597,000	316,000	75,700	16	303,000	1,290,000
Stocks, November 30, 2004	430,000	268,000	6,570	22,800	860,000	1,590,000
2004, December:						
Steel:						
Carbon	30,400	W	--	--	W	30,400
High-strength low-alloy	32,000	22,100	--	--	11,300	65,400
Stainless and heat-resisting	204,000	65,500	--	W	6,780	277,000
Full alloy	134,000	185,000	--	--	1,510	320,000
Tool	51,100	W	--	--	--	51,100
Total	452,000	273,000	--	W	19,600	744,000
Cast irons (gray, malleable, and ductile iron)	W	11,000	--	--	763	11,800
Superalloys	70,000	W	--	(3)	118,000	188,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	93	2,910	--	--	20	3,020
Mill products made from metal powder ⁴	--	--	--	--	129,000	129,000
Cemented carbides and related products ⁵	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	W	--	--	W
Catalysts	77,300	--	W	--	W	77,300
Other chemicals	--	--	--	--	976	976
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	14,500	14,500
Other	1,090	43,500	78,100	16	16,800	139,000
Grand total	600,000	330,000	78,100	16	300,000	1,310,000
Stocks, December 31, 2004	419,000	255,000	5,050	11,700	853,000	1,540,000

W Withheld to avoid disclosing company proprietary data; included in "Other" of the "Miscellaneous and unspecified uses" category. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes calcium molybdate.

³Included in "Other" of the "Superalloys" category.

⁴Includes ingot, wire, rod, and sheet.

⁵Includes construction, mining, oil and gas, metalworking machinery.

TABLE 4
U.S. EXPORTS OF MOLYBDENUM ORES AND CONCENTRATES
(including roasted concentrate), BY COUNTRY¹

(Kilograms, contained molybdenum)

Country	2003	2004		
	January- December	October	November	Year to date
Australia	102,000	5,820	5,700	30,500
Austria	--	--	--	1,310,000
Belgium	3,190,000	182,000	843,000	6,390,000
Brazil	42,600	3,510	4,090	29,200
Canada	910,000	130,000	51,700	1,240,000
Chile	368,000	--	--	1,380,000
China	82,600	--	--	36,000
Costa Rica	22,500	--	720	26,700
India	44,300	--	--	430
Italy	20,300	--	--	--
Japan	2,000,000	146,000	144,000	5,660,000
Korea, Republic of	61,400	5,600	1,860	93,200
Mexico	3,730,000	389,000	300,000	3,510,000
Netherlands	10,900,000	418,000	698,000	13,100,000
Sweden	25,700	--	--	--
Taiwan	9,590	--	--	18,600
United Kingdom	7,880,000	1,000,000	252,000	8,190,000
Other	137,000	132,000	102,000	2,770,000
Total	29,500,000	2,410,000	2,400,000	43,800,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 5
U.S. EXPORTS OF FERROMOLYBDENUM, BY COUNTRY¹

(Kilograms, contained molybdenum)

Country	2003	2004		
	January- December	October	November	Year to date
Australia	873	--	--	1,090
Canada	547,000	34,500	75,500	811,000
Denmark	241	--	--	--
France	--	--	10,100	10,100
Indonesia	--	--	381	381
Japan	61	--	--	--
Mexico	43,100	--	--	33,700
Netherlands	25,500	--	--	--
United Kingdom	--	--	--	491
Total	617,000	34,500	86,000	857,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF MOLYBDENUM PRODUCTS¹

(Kilograms, unless otherwise specified)

Material	January-December 2003			November 2004		
	Gross weight	Contained molybdenum	Value (c.i.f.) ² (thousands)	Gross weight	Contained molybdenum	Value (c.i.f.) ² (thousands)
Ore and concentrates roasted	6,310,000	3,960,000	\$41,900	654,000	409,000	\$19,400
Ore and concentrates other	2,870,000	1,230,000	9,580	1,090,000	474,000	23,500
Molybdenum chemicals:						
Oxides and hydroxides	1,300,000	NA	9,780	68,700	NA	1,620
Molydates of ammonium	1,620,000	937,000	11,600	270,000	157,000	2,030
Molydates (all others)	324,000	145,000	1,200	58,600	27,100	571
Molybdenum orange	987,000	NA	4,440	79,700	NA	338
Ferromolybdenum	5,740,000	3,690,000	38,200	703,000	454,000	18,500
Molybdenum powders	57,000	43,100	2,000	759	726	52
Molybdenum unwrought	139,000	136,000	1,700	1,120	1,130	63
Molybdenum waste and scrap	425,000	388,000	5,000	22,600	22,300	954
Molybdenum wire	10,600	NA	776	2,000	NA	199
Molybdenum other	79,900	NA	6,420	14,400	NA	1,430
Total	19,900,000	10,500,000	133,000	2,970,000	1,540,000	68,700

NA Not available.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Cost, insurance, and freight at U.S. ports.

Source: U.S. Census Bureau.